

CLAIMS

1. A fiber-to-the-home (FTTH) system having a forward path, comprising:
a receiving device including a QAM modulator for receiving IP signals, wherein
the IP signals comprise video, audio, and data signals;
5 the QAM modulator for receiving and modulating IP video and audio signals to
provide RF video and audio signals; and
at least one digital home communications terminal (DHCT) for receiving the RF
video signals.

10 2. The FTTH system of claim 1, wherein the receiving device further comprises a
switch for providing the IP video and audio signals to the QAM modulator via a QAM
modulator address, and for providing IP data signals to a computer via a computer
address.

15 3. The FTTH system of claim 1, further comprising an optical network terminal
located in close proximity to the at least one DHCT for providing the IP video and audio
signals to the receiving device and for providing IP telephone signals to a coupled
telephone.

20 4. The FTTH system of claim 1, further comprises a reverse path, comprising:
the at least one digital home communications terminal (DHCT) for transmitting
reverse RF signals, the reverse RF signals including header information and payload data;
the receiving device for receiving the reverse RF signals, demodulating the
reverse RF signals, and converting the demodulated signals to Ethernet signals;
25 an optical network terminal (ONT) coupled to the receiving device for converting
the Ethernet signals to optical signals, and for transmitting the optical signals to a
headend facility via optical fiber; and
a downstream modulator located in the headend facility for receiving the optical
signals and for sending the forward signals, the downstream modulator having an
30 identification number that is inserted into the forward signals,
wherein the at least one DHCT inserts the received modulator identification
number in the reverse header information, and wherein the SWRD converts the modulator
identification number into an Internet Protocol address indicative of the modulator
identification number.

5. The FTTH system of claim 4, the receiving device further comprising:
an upstream demodulator coupled to the diplex filter for demodulating the reverse
RF signals;

5 a microprocessor for converting the demodulated signals to Ethernet signals and
for providing the Ethernet signals to the switch; and
the switch for receiving the Ethernet signals and any additional signals from a
second source, the switch for combining the signals and for providing a combined signal
to the ONT.

10 6. The FTTH system of claim 5, wherein the SWRD converts the identification
number into the Internet Protocol number via the microprocessor.

7. A method for transmitting and receiving IP signals in a fiber-to-the-home (FTTH)
15 network, the IP signals including video, audio, voice, and data signals, the FTTH network
including a forward path and a reverse path, the method comprising the steps of:

receiving the IP signals at an optical network terminal;
providing the IP video and audio signals to a switch included in a single wire
return device (SWRD), wherein the switch provides the IP video and audio signals to a
20 QAM modulator in the SWRD;

modulating the IP video and audio signals to provide modulated video and audio
signals for viewing on conventional DHCTs.

8. The method of claim 7, further comprising the step of providing the IP data
25 signals to the switch, wherein the switch provides the IP data signals to a coupled
computer.

9. The method of claim 7, further comprising the steps of:
generating a reverse RF modulated signal including header information in the
30 DHCT;
providing the reverse RF modulated signal via coaxial cable to the SWRD;
demodulating the reverse RF modulated signal to provide a reverse demodulated
signal;
processing the reverse demodulated signal to provide a reverse Ethernet signal;

converting the reverse Ethernet signal to a reverse optical signal in the ONT; and
receiving the reverse optical signal at a downstream modulator located in a
headend facility,

wherein the downstream modulator transmits a forward signal in response to the
received reverse optical signal.

10. The FTTH system of claim 9, wherein the downstream modulator includes an
identification number that is inserted into signals transmitted in the forward path and
stored in the DCT, and wherein the DCT inserts the received identification number into
the reverse header information prior to transmitting to the SWRD.

11. The FTTH system of claim 10, wherein the SWRD converts the identification
number into an Internet Protocol address that is indicative of the identification number.